

ORNITHOLOGICAL LITERATURE¹

THE WHITE-CROWNED SPARROWS (*ZONOTRICHIA LEUCOPHRYX*) OF THE PACIFIC SEABOARD: ENVIRONMENT AND ANNUAL CYCLE. By Barbara D. Blanchard. University of California Publications in Zoölogy, 46, No. 1: 1-178, 20 plates, 30 figures. Nov. 14, 1941. \$2.00.

This is a notable paper, combining in masterly style field observation and laboratory technique, life history study and histological examinations of collected specimens. It is a systematic analysis of the differences in two races of the White-crowned Sparrow which winter together in Berkeley, California, one of them remaining there to nest, the other migrating to Puget Sound in March. Five years were spent in observation at Berkeley and one nesting season, besides one winter visit, at Friday Harbor, Washington; in both localities nesting birds were color-banded.

As to morphological differences, the northern race (*Z.l.pugetensis*) is lighter in color with "lighter weight, perhaps reflecting smaller body size, but not reflected in the dimensions of the appendages" (p. 10). In comparing winter males, 43 *pugetensis* averaged 26.6 grams and 17 *Z.l.nuttalli* 29.1 grams. The pre-nuptial molt is much more extensive in *pugetensis* than in *nuttalli*, so that "first-year Puget Sound sparrows breed in fully adult plumage, whereas first-year Nuttall sparrows breed in wholly or partially immature plumage."

The nesting cycle of the Nuttall Sparrow is divided into four chief periods: the base level (fall and winter); the rising tide of territorial and sexual instincts; reproductive; subsidence (at the time of the molt). The pair stay on their territory throughout the year, tolerating strangers, but in January the male drives out others with song and pursuit. Nesting starts in March or April, the female builds and incubates, the male helps feed; young are cared for until they are 32 to 35 days old. Sometimes three broods are fledged within 6.3 months.

Reproduction is similar with the Puget Sound Sparrow, but less leisurely; young are cared for for only 25-28 days, three broods being attempted in four months.

More than half the volume is devoted to a detailed study of the gonad cycle of the two races. Although these birds are exposed throughout the winter to identical conditions of light, temperature, and other factors, the gonads of the residents reach 5 mm³ in early January and full size (135 mm³) in March; while those of the winter residents reach only 4-5 mm³ (stage 4 or 5) at this date. Dr. Blanchard finds that "temperature is the most important single factor lying at the ultimate source of annual variations of the gonad cycle" (p. 74). She divides the time of increase of the gonads into three periods: I—prior to Dec. 21; II—Dec. 21 to time of attainment of stage 5 (4 to 9 weeks); III—from stage 5 to the first eggs (7 to 8 weeks). There was no correlation with temperature in Period I; high correlation in Period II, but low correlation with precipitation and sunshine; while in Period III correlation with all factors was low. She criticizes the drawing of sweeping conclusions from experiments based on subjecting captive birds to conditions of abnormal lighting. "In fact it seems to me extremely doubtful whether the abundant means which have been discovered for upsetting the physiological balance of captive birds should be accepted as possessing any bearing whatever on the factors which control the cycle under natural conditions" (p. 76).

There is a wealth of valuable material in this volume on territory, relations of mates to each other and their neighbors, flock, and behavior, as well as the physiological and histological research. It is a brilliant piece of work and deserves wide circulation and careful study.—M. M. Nice.

ATTWATER'S PRAIRIE CHICKEN, ITS LIFE HISTORY AND MANAGEMENT. By Valgene W. Lehmann. North American Fauna 57, 1941. v + 65 pp., 14 plates, 4 text figures. \$0.40 (paper), of Superintendent of Documents, Washington, D.C.

Within the last 100 years, the range of the Attwater's Prairie Chicken in Texas

¹ For additional reviews see pages 16 and 24.